

**FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY**

DOCKET FILE COPY ORIGINAL

No. of Copies rec'd.  
List A B C D E

## TABLE OF CONTENTS

SUMMARY .....	i
ADOPTION OF PART 101 IS IN THE PUBLIC INTEREST .....	3
THE COMMISSION MUST REVISE ITS PROPOSED PART 101 TO ENSURE EQUAL TREATMENT FOR PRIVATE AND COMMON CARRIER FIXED POINT-TO-POINT MICROWAVE APPLICANTS AND LICENSEES .....	7
A.    Only One Set of Technical Standards Should Be Adopted. ....	7
B.    Application Content Requirements Must Be Uniform. ....	10
C.    Frequency Assignments Must Be Consolidated. ....	14
D.    POFS Licensees Must Be Eligible For Temporary Authorizations. ...	15
E.    Common Carriers Must Be Eligible For Pre-Authorization Construction Under Part 101. ....	16
F.    The Distinction Between Private and Common Carrier Users Must Be Maintained. ....	16
CERTAIN USER RELATED RULES MUST BE REVISED .....	17
A.    The Proposed Frequency Coordination Rules Must Be Fine-Tuned. ...	18
B.    The Interference Protection Criteria Are Appropriate With Certain Minor Changes. ....	22
C.    Frequency Tolerance Specifications Must Be Revised. ....	25
D.    Maximum Authorized Bandwidth Must Be Specified . ....	25
E.    Microwave Modulation Rules Are Too Narrow. ....	26
F.    Changes Are Needed In Criteria For Classifying Application Amendments And License Modifications ....	31
G.    A Transition Period For Compliance With Part 101 Must Be Specified. ....	32
H.    The Construction Period Must Be Increased from 12 to 18 Months. ...	33

THE EQUIPMENT RELATED RULES SHOULD BE ADOPTED WITH CERTAIN REVISIONS .....	34
A.    Antenna Standards Must Be Revised To Include And Clarify What Stations Are Covered, How Upgrades Are Accomplished, And What Polarization Specifications Must Be Used. ....	34
B.    ATPC Must Be Permitted. ....	37
C.    Transmitter Power Values Must Be Revised. ....	40
D.    Path Length Equation Must Be Revised. ....	43
E.    Station Record Keeping Requirements Must Be Retained. ....	44
CONCLUSION .....	45

#### APPENDIX A -- TEXT OF PROPOSED REVISIONS

## SUMMARY

In the captioned Notice of Proposed Rulemaking ("NPRM"), the Commission proposes "to simplify the rules" for Part 21 and Part 94 fixed microwave services, to consolidate these rules into a new Part 101, and to "restructure the fixed microwave rules so that they are easier for the public to understand and use."<sup>1</sup> The Fixed Point-to-Point Communications Section, Network Equipment Division of the Telecommunications Industry Association ("TIA"), the principal industry association representing microwave manufacturers, and the National Spectrum Managers Association, Inc. ("NSMA"), the principal industry association of frequency coordinators, enthusiastically support the Commission's objectives in this proceeding.

Adoption of a uniform set of rules for private and common carrier fixed point-to-point microwave licensees and applicants is timely and critical. These private and common carriers increasingly share many frequency bands, including the five (5) bands above 3 GHz recently reallocated to accommodate users which must relocate to clear spectrum for emerging technologies, including personal communications services ("PCS").<sup>2</sup>

The Part 101 technical rules must be in place before PCS licenses are granted and before 2 GHz users commence relocation. These rules are needed to guide how the former 2 GHz fixed licensees will operate in the new bands. If such rules are not in place,

---

<sup>1</sup>NPRM at para. 1.

<sup>2</sup>TIA has completed its "Telecommunications Systems Bulletin No. 10-F, Interference Criteria for Microwave Systems" ("Bulletin 10-F"), which prescribes standards for implementing the new channel plan for the bands above 3 GHz and for establishing criteria regarding 2 GHz band PCS-to-microwave interference protection.

implementation of PCS could be delayed significantly due to a backlog of 2 GHz relocation applications, waiver requests by such applicants, and uncertainty over which rules apply.

In the Second Report and Order for ET Docket No. 92-9, when the Commission reallocated the bands above 3 GHz, it expressly postponed consideration of various permanent technical rules for Part 21 and Part 94 licensees. Specifically, as part of the ET Docket No. 92-9 rulemaking, proposed rules governing minimum path length requirements, frequency diversity transmissions, transmitter power, Automatic Transmitter Power Control ("ATPC"), modulation specifications, emission levels, and bandwidth limitations, were submitted, but were deferred by the Commission until this NPRM.<sup>3</sup>

For the past 18 months, since release of the Second Report and Order, TIA and NSMA have been quite interested in how Parts 21 and 94 would be consolidated into a new Part 101 and how the technical issues that were raised in ET Docket No. 92-9 would be resolved. TIA formed a working group to develop technical rule proposals. This group consists of fixed point-to-point microwave manufacturers, private and common carrier users, and frequency coordinators, including members of NSMA. In April and May 1994, this working group submitted, to the Commission, detailed and extensive recommendations for the technical rules that should be included in Part 101. Several meetings between the working group and Commission staff were held to discuss and refine these proposals.

In the NPRM, the Commission incorporates many of TIA's proposals. The TIA recommendations do not break new ground. They are based upon the technical proposals

---

<sup>3</sup>Redevelopment of Spectrum to Encourage Innovation In the Use of New Telecommunications Technologies, Second Report and Order, ET Docket No. 92-9, 8 FCC Rcd 6495, 6519-20 (1993) ("Second Report and Order"), modified, Memorandum Opinion and Order, 9 FCC Rcd 1943 (1994).

submitted during the ET Docket No. 92-9 rulemaking that were deferred to the Part 101 rulemaking.

TIA and NSMA greatly appreciate the Commission's willingness to consider these recommendations and, to a large extent, propose their adoption. Certain of the proposed rules in the NPRM, however, must be revised to ensure that "the microwave industry [can] operate as efficiently as possible without being hampered by obsolete regulations."<sup>4</sup> Consequently, as detailed in these joint comments, TIA and NSMA support prompt adoption of the rules proposed in the NPRM, except for the recommended changes set forth below.<sup>5</sup>

Equal treatment for private and common carrier users -- Even though private and common carrier fixed point-to-point microwave users are unique in many ways, and even though these differences must be preserved as much as possible in the Part 101 rules, both classes of users generally must be subject to the same technical standards:

- All technical rules governing Part 21 and Part 94 fixed point-to-point microwave users must be consolidated into the proposed Subpart C

---

<sup>4</sup>NPRM at para. 7.

<sup>5</sup>The text for these proposed changes is included in Appendix A hereto. To ensure that these proposed revisions are clear, TIA and NSMA, in Appendix A, list all Part 101 rules from the NPRM. If no change to the NPRM text is proposed, it is so noted. If deletion and/or relocation of the entire rule in the NPRM is proposed, it is so noted. If a change is proposed, the entire text of the rule is included as set forth in the NPRM, and it is marked to show the changes that TIA and NSMA request. In addition to the rules addressed herein, TIA and NSMA also request, in Appendix A, that the Commission: (i) to be consistent with industry usage, revise or include definitions for "antenna power gain," "ATPC," "common carrier fixed point-to-point microwave service," "passive repeater," "path length," "periscope antenna system," "prior coordination," and "private operational fixed point-to-point microwave service;" (ii) change all appropriate cross-references to reflect these definitions; (iii) revise the table of frequencies in Section 101.101; and (iv) correct the values in Section 101.111 (emission limitations) from "Log 10" to the appropriate subscript, "Log <sub>10</sub>." Finally, the Commission must ensure that all cross-references to Parts 21 and 94 in other rules are revised as necessary to reflect the adoption of Part 101.

(Technical Standards). Any technical rules in either Subpart H (Private Operational Fixed Microwave Service) or Subpart I (Point-to-Point Microwave Radio Service) must be deleted and included, if necessary, in Subpart C. The frequency tables in Subpart H and Subpart I must be combined into a single table (new Section 101.147) in Subpart C. Technical requirements that would be applicable only to private or common carrier fixed point-to-point microwave applicants and licensees must be included as express exceptions in the Subpart C rules and not elsewhere in Part 101. Unnecessary confusion and redundancy thus would be eliminated.

- To preserve the unique identity of private carriers and common carriers, non-technical rules applicable to these separate services, such as eligibility and permissible communications, must remain in Subparts H and I, respectively. In addition, Section 101.3 must be revised to include specific definitions for "Private Operational Fixed Point-to-Point Microwave Service" and for "Common Carrier Fixed Point-to-Point Microwave Service." Subparts H and I, respectively, should be renamed accordingly.
- Private and common carriers must be subject to the same application, authorization, and construction rules. In the NPRM, the Commission does not propose such equal treatment. Private carriers should be eligible for temporary fixed authorizations in the same manner as common carriers are in proposed Sections 101.715 and 101.717. Therefore, TIA and NSMA propose that these sections be included in Section 101.31. Both private and common carriers should be subject to a single set of application content requirements, which must obligate the applicant to specify the equipment (including antennas) for its system in the application. Private and common carriers would use the same application forms. Under Part 101, common carriers must be able to construct, but not operate, prior to licensing in the same manner as private carriers (which is proposed in pending CC Docket No. 93-2).

User related issues -- The proposals in Part 101 improve significantly the ability of users to operate in a spectrally efficient, interference-free environment. Nevertheless, the Commission must clarify and revise certain of these proposals to optimize the utility of the new rules:

- Standards for determining what constitutes a "major" amendment (Section 101.29) and for determining how to process modification applications (Sections 101.59 and 101.61) must be revised to be congruent with industry usage.
- Under Section 101.63, the construction period for both private and common carriers should be 18 months instead of 12 months. Such an increase is necessary to protect licensees in case of weather problems or in case of the anticipated shortage of resources (e.g., tower sites, construction crews, engineering consultants, and equipment) resulting from the influx of PCS applicants and re-located 2 GHz fixed licensees.
- No transition period to the Part 101 rules is proposed. This omission is a serious oversight. Given the anticipated substantive differences between certain of the new rules and the old rules in Parts 21 and 94, such as interference protection, frequency coordination, digital loading standards, and antenna requirements, a specific transition period is necessary. TIA and NSMA propose in new Section 101.4 that the Commission establish an effective date for Part 101, and that all existing licensees or pending applicants (including applications for modifications and expansions) as of that date are grandfathered under Parts 21 and 94.
- The proposed frequency coordination (Section 101.103), interference protection (Section 101.105), frequency tolerance (Section 101.107), and bandwidth (Section 101.109) rules generally are acceptable. However, the Commission must: (i) make it clear that the frequency coordination rules apply both to private and common carriers; (ii) prescribe interference resolution dispute mechanisms to safeguard users as PCS licensees increase and 2 GHz fixed point-to-point microwave licensees re-locate; (iii) permit relaxation of interference criteria if both parties consent (as is done currently under Section 94.15(b)(2)); (iv) define the "practical threshold" for determining acceptable analog interference under Section 101.105(b), based upon Bulletin 10-F or any other suitable engineering standard; (v) revise the frequency tolerance rule to include specifications for the 4, lower 6, and 11 GHz bands and for heterodyne equipment; and (vi) specify the maximum bandwidth for individual frequency bands.
- Minimum capacity and loading requirements must be revised. Analog modulation requirements must be specified. Digital modulation specifications must apply to frequencies below 19.7 GHz, instead of the 15 GHz threshold proposed in Section 101.141. Loading requirements



must apply only to commercially available equipment. Voice channel requirements for digital transmission equipment must be eliminated.

Equipment issues -- The proposed Part 101 rules encompass several equipment-related issues. Certain of these proposals must be revised:

- Standards governing antennas always have been essential to spectrally efficient fixed microwave operation. The proliferation of PCS and other new technologies make these standards even more important. In Section 101.115, changes must be made to cover fixed stations operating at 900 MHz or higher (certain provisions in the proposed rule only cover stations operating at 2500 MHz or higher) and to clarify the requirements for antenna upgrades. In Section 101.117, antenna polarization must be defined to include only vertical or horizontal polarization, which is consistent with standard industry usage.
- The use of ATPC is an essential tool in maximizing the number of microwave systems that can be engineered in a particular geographic area. Unfortunately, in paragraph 18 of the NPRM, the Commission eschews using ATPC in its Part 101 proposal. This decision is inappropriate. ATPC must be used based upon the guidelines established in Bulletin 10-F. Using these industry guidelines, the maximum power would be specified in the license, but the licensee would have the option to reduce power to the extent necessary to optimize the number of paths that could be established. Indeed, most of the time, the user operates at the lower power and the maximum, licensed power is used only when necessary. Thus, use of ATPC does not require any change in Commission record keeping, licensing or filing requirements. Permitting ATPC in Part 101, Subpart C, would make this useful tool available to private carriers for the first time.
- Station record keeping requirements must be retained to ensure proper operation and to facilitate problem correction.

The Commission intends that its new Part 101 rules be "user friendly."<sup>6</sup> Adoption of these and other changes, which are summarized in the following chart and are detailed in the joint comments, will ensure that this goal is achieved.

---

<sup>6</sup>NPRM at para. 21.

## PROPOSED RULE REVISIONS<sup>7</sup>

RULE	SUBJECT	PROPOSED REVISION
SUBPARTS C, H & I	TECHNICAL STANDARDS	<ul style="list-style-type: none"> <li>• Delete 101.605/101.703 (Frequencies), 101.607/101.707 (Bandwidth), 101.705 (Transmitter Power), 101.709 (Modulation Requirements), 101.713 (Prior Coordination), 101.721 (Channel Loading) from Subparts H &amp; I. Include, as necessary, in corresponding Subpart C rules.</li> <li>• Combine 101.605/101.703 frequency tables into single list of frequencies (new 101.147).</li> <li>• Rename Subpart H, "Private Operational Fixed Point-to-Point Microwave Service" and Subpart I, "Common Carrier Fixed Point-to-Point Microwave Service."</li> <li>• Retain non-technical rules for POFS and CC in Subparts H &amp; I, respectively.</li> </ul>
101.3	DEFINITIONS	New or revised definitions for: (i) "antenna power gain;" (ii) "ATPC;" (iii) "common carrier fixed point-to-point microwave service;" (iv) "passive repeater;" (v) "path length;" (vi) "periscope antenna system;" (vi) "prior coordination;" and (vii) "private operational fixed point-to-point microwave service."
101.5	STATION AUTHORIZATION	Only POFS can construct before license grant. Permit CC to do same (per CC Dkt. No. 93-2).
101.13/101.15	APPLICATION FORMS	<ul style="list-style-type: none"> <li>• Use a single application form for POFS and CC applicants.</li> <li>• Rule governing forms is 101.13; delete 101.15.</li> </ul>
101.21	APPLICATION CONTENT	<ul style="list-style-type: none"> <li>• Now applicable only to CC. Make applicable also to POFS.</li> <li>• Include former 101.713 (Supp. Showing) for CC and POFS.</li> <li>• Require disclosure of equipment data.</li> </ul>
101.29	AMENDMENTS	<ul style="list-style-type: none"> <li>• Revise criteria for "major" amendment to more closely reflect industry usage.</li> </ul>
101.31	STA/TEMP. AUTH.	<ul style="list-style-type: none"> <li>• Now only CC eligible for temporary authority. Make applicable also to POFS.</li> <li>• Permit expedited prior coordination notice ("PCN").</li> </ul>
101.59	MINOR MODIFICATION PROCESSING	Revise (c)(2)(i) to make permissible change any increase in antenna height of 3.0 meters, not 6.1 meters as is proposed.
101.61	MODIFICATIONS NOT REQUIRING PRIOR AUTHORIZATION	Revise (c)(5) to reference antenna "center line" height.
101.63	CONSTRUCTION PERIOD	18, not 12 months for POFS and CC.

<sup>7</sup>Private operational fixed point-to-point microwave service is referred to as "POFS" and common carrier fixed point-to-point microwave service is referred to as "CC."

RULE	SUBJECT	PROPOSED REVISION
101.101	FREQUENCY AVAILABILITY	Also show frequency availability for fixed satellite, ITFS, DBS and ISM services and for Emerging Technologies.
101.103	FREQUENCY COORDINATION	<ul style="list-style-type: none"> <li>• Clarify that rules apply to POFS &amp; CC.</li> <li>• Revise PCN data to include info re: frequencies/polarizations, transmitting/receiving antennas and transmission line loss.</li> <li>• Revise requirement for protecting a "growth channel."</li> </ul>
101.105	INTERFERENCE PROTECTION	<ul style="list-style-type: none"> <li>• Permit relaxation of interference criteria upon mutual consent.</li> <li>• Establish interference dispute resolution mechanisms.</li> <li>• Define "practical threshold" based upon Bulletin 10-F.</li> <li>• Eliminate requirement that modification applicant perform interference protection analyses because already required under 101.103(d).</li> </ul>
101.107	FREQUENCY TOLERANCE	<ul style="list-style-type: none"> <li>• Revise 101.107(a) table of frequency tolerances to include specifications for the 4, lower 6, and 11 GHz bands.</li> <li>• Revise 101.107(b) so heterodyne receivers are addressed; restrict heterodyne operation to channel bandwidth of 10 MHz or greater.</li> </ul>
101.109	BANDWIDTH	Specify maximum authorized bandwidths for individual frequency bands.
101.113	TRANSMITTER POWER	<ul style="list-style-type: none"> <li>• Permit ATPC.</li> <li>• EIRP must be per frequency, per polarization; not power per frequency.</li> <li>• Revise transmitter power table.</li> </ul>
101.115/101.117	ANTENNAS	<ul style="list-style-type: none"> <li>• Revise Antenna Standards table to show 1850-2500 not 1850-1990 MHz band.</li> <li>• Clarify that antenna standards cover all fixed stations operating at 900 MHz or higher.</li> <li>• Clarify provisions for antenna upgrade.</li> <li>• Define polarization as vertical/horizontal, not circular -- permit cross-polarization.</li> </ul>
101.141	MICROWAVE MODULATION	<ul style="list-style-type: none"> <li>• Specify analog modulation requirements.</li> <li>• Digital modulation requirements apply to equipment operating on 19.7 GHz and below, not 15 GHz.</li> <li>• Loading requirements apply only to commercially available equipment.</li> <li>• Delete requirement that digital transmitters eliminate carrier spikes or single frequency tones in output signal.</li> <li>• Revise capacity/loading requirements, including making minimum payload capacity per polarization.</li> <li>• Delete 101.141(f) regarding periscope antennas.</li> </ul>
101.143	MINIMUM PATH LENGTH REQUIREMENTS	<ul style="list-style-type: none"> <li>• Clarify that requirements apply to any POFS or CC user subject to Part 101.</li> <li>• Revise equation for shorter links.</li> </ul>
--	ELECTRONIC FILING	Establish timetable for implementation.
101.211	OPERATOR REQUIREMENTS	Change from being applicable only to POFS licensees to being applicable to POFS and CC licensees.

RULE	SUBJECT	PROPOSED REVISION
Proposed new 101.215	RECORD KEEPING	Require per Section 94.113.
Proposed new 101.4	TRANSITION PERIOD	<ul style="list-style-type: none"> <li>• Establish effective date.</li> <li>• Grandfather existing systems under Parts 21/94.</li> </ul>
101.403	DEVELOPMENTAL AUTHORIZATIONS	Ensure that developmental authorizations could be granted for appropriate testing of all fixed point-to-point microwave equipment.

The importance of adopting the foregoing technical recommendations cannot be overemphasized. These rules should have been adopted in the Second Report and Order, but the Commission decided to wait until initiating the rulemaking for consolidating Parts 21 and 94. TIA, NSMA, and the entire fixed point-to-point microwave industry, have relied on the Commission's promise to consider the technical proposals deferred from ET Docket No. 92-9 and have waited for this opportunity to re-submit them. With minor exceptions, the proposals herein repeat the ET Docket No. 92-9 proposals and thus must be considered fully and adopted by the Commission in this proceeding. Any further delay only would jeopardize the public interest by disrupting deployment of PCS, relocation of 2 GHz fixed microwave users, and continued availability of all fixed point-to-point microwave radio services.

RECEIVED

FEB 17 1995

Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

In the Matter of

Reorganization and Revision of  
Parts 1, 2, 21, and 94 of  
the Rules to Establish a New  
Part 101 Governing Terrestrial  
Microwave Fixed Radio Services

)  
)  
)  
)  
)  
)  
)

WT Docket No. 94-148

DOCKET FILE COPY ORIGINAL

To: The Commission

**JOINT COMMENTS**

Pursuant to Section 1.415 of the Commission's Rules,<sup>1</sup> the Fixed Point-to-Point Communications Section, Network Equipment Division of the Telecommunications Industry Association ("TIA"), and the National Spectrum Managers Association, Inc. ("NSMA"), hereby comment on the above-captioned Notice of Proposed Rulemaking ("NPRM") to establish a new Part 101 governing terrestrial microwave fixed radio services.

TIA is the principal industry association representing fixed point-to-point microwave radio manufacturers. TIA members serve, among others, companies, including telephone carriers, utilities, railroads, state and local governments, and cellular carriers, licensed by the Commission to use the 2 GHz private and common carrier bands for provision of important and essential telecommunications services. As a result of the Commission's recent

---

<sup>1</sup>47 C.F.R. Section 1.415 (1989). The deadline for filing comments on the NPRM has been extended from February 3, 1995, to February 17, 1995. Order (DA 95-140, released Feb. 2, 1995).

reallocation decisions in ET Docket No. 92-9,<sup>2</sup> TIA members' 2 GHz user customers must relocate to higher frequency bands so spectrum can be cleared for personal communications services ("PCS") and other emerging technologies.

TIA's members, as suppliers to the large and important fixed point-to-point microwave radio market, are greatly concerned about the criteria for determining what technical and other rules will govern operation by their customers. Consistent with this interest, TIA has adopted its "Telecommunications Systems Bulletin No. 10-F, Interference Criteria for Microwave Systems ("Bulletin 10-F"), which prescribes standards for implementing the new fixed point-to-point microwave radio channel plans for the bands above 3 GHz and for establishing criteria regarding 2 GHz band PCS-to-microwave interference protection.

The NSMA represents the frequency coordination community. Established in 1984, the NSMA is a voluntary association of individuals involved in the frequency coordination of terrestrial microwave and satellite earth stations. The NSMA's role is to supplement the Commission's coordination rules with procedural and technical recommendations developed in an open industry forum of coordinators, licensees, and manufacturers. The NSMA's objective is to make the frequency coordination process more efficient and effective.

---

<sup>2</sup>Redevelopment of Spectrum to Encourage Innovation In the Use of New Telecommunications Technologies, Second Report and Order, ET Docket No. 92-9, 8 FCC Rcd 6495 (1993) ("Second Report and Order"), modified, Memorandum Opinion and Order, 9 FCC Rcd 1943 (1994).

## ADOPTION OF PART 101 IS IN THE PUBLIC INTEREST

In the NPRM, the Commission proposes "to simplify the rules" for Part 21 and Part 94 fixed microwave services, to consolidate these rules into a new Part 101, and to "restructure the fixed microwave rules so that they are easier for the public to understand and use . . . ." <sup>3</sup>

The Part 21 and Part 94 rules need to be consolidated, conformed, and updated to allow the microwave industry to operate as efficiently as possible without being hampered by obsolete regulations. Because of the commonality of major portions of the existing common carrier and private operational fixed microwave rules and the industry move to create common standards and coordination procedures, we believe it would be beneficial to consolidate these rules into one comprehensive part. At the same time, this proceeding provides us with an opportunity to improve the organization of the microwave rules, to simplify them, to eliminate unnecessary language, and to make other substantive amendments. We expect that a new consolidated Part 101 will result in major benefits. First, the public will benefit because of a much simplified and streamlined licensing process. Second, the improvements in processing efficiency will save scarce Commission resources and free staff time to improve service to the public. Third, we expect the proposed rules to encourage more efficient use of the microwave spectrum. Finally, common technical standards for common carrier and private microwave equipment may lead to economies of scale in microwave equipment production and, thus, lower equipment prices to users. <sup>4</sup>

TIA and NSMA enthusiastically support the Commission's objectives in this proceeding.

Adoption of a uniform set of rules for private operational fixed ("POFS") and common carrier fixed ("CC") point-to-point microwave applicants and licensees is timely and critical:

Common carrier microwave services and private operational fixed microwave services share many of the same frequency bands and use substantially the same equipment. As a result of recent changes that are discussed below, the

---

<sup>3</sup>NPRM at para. 1.

<sup>4</sup>NPRM at para. 7.

interference standards, antenna standards, and coordination procedures for private and common carrier fixed microwave services have further converged. This rulemaking is an effort to conform filing, processing, operational, and technical requirements for services that are technically similar and, thereby, to gain significant economies and alleviate confusion to the public.<sup>5</sup>

These shared frequency bands include the five (5) bands above 3 GHz recently reallocated to accommodate users which must relocate to clear spectrum for emerging technologies, including PCS. To avoid delays in application processing, the Part 101 technical rules must be in place before the PCS and relocated 2 GHz microwave applications are filed.

TIA formed a working group, consisting of manufacturers, private and common carrier users, and frequency coordinators (including members of NSMA),<sup>6</sup> to develop a uniform, consistent set of Part 101 technical rule proposals. In April and May 1994, this working group submitted, to the Commission, detailed and extensive recommendations for the technical rules that should be included in Part 101 and it held several meetings with Commission staff to discuss and refine these proposals.<sup>7</sup>

In the NPRM, the Commission incorporates many of TIA's proposals. TIA and NSMA greatly appreciate the Commission's willingness to consider these recommendations and, to a large extent, propose their adoption. However, certain of the proposed rules in the NPRM must be revised to ensure that they conform with standard industry practice and

---

<sup>5</sup>NPRM at para. 2.

<sup>6</sup>The members of this working group represented Alcatel Network Systems, Inc., Harris Corporation-Farion Division, Bellcore, EMI Communications Corporation, Union Pacific Railroad, US West, and Comsearch.

<sup>7</sup>See NPRM at para. 5 and footnote 8.



that all POFS and CC point-to-point microwave applicants and licensees are subject to the same technical rules. Consequently, as detailed below, TIA and NSMA support prompt adoption of the rules proposed in the NPRM, except for certain recommended changes.<sup>8</sup>

- Equal treatment for private and common carriers -- All technical rules and frequency assignments applicable to Part 21 and Part 94 fixed point-to-point microwave applicants and licensees must be consolidated into the proposed Part 101, Subpart C (Technical Standards). To preserve the unique identity of POFS and CC licensees, non-technical rules applicable to these separate services, such as eligibility and permissible communications, must remain in Subpart H (Private Operational Fixed Microwave Service) and Subpart I (Point-to-Point Microwave Radio Service). POFS and CC licensees must be subject to the same requirements for application filing (e.g., application forms and content), authorization (e.g., private carriers would be eligible for temporary authorizations in the same manner as common carriers), and construction (e.g., common carriers could construct before licensing in the same manner as private carriers). Definitions must be adopted for the "Private Operational Fixed Point-to-Point Microwave Service" and for the "Common Carrier Fixed Point-to-Point Microwave Service." Subparts H and I, respectively, should be renamed accordingly.
- User related issues -- A transition period for the Part 101 rules must be established to facilitate deployment of the substantive new equipment and interference standards that will be applied. Criteria for classifying "major" application amendments and license modifications must be revised to be more industry-appropriate. To safeguard against

---

<sup>8</sup>The text for these proposed changes is included in Appendix A hereto. To ensure that these proposed revisions are clear, TIA and NSMA, in Appendix A, list all Part 101 rules from the NPRM. If no change to the NPRM text is proposed, it is so noted. If deletion and/or relocation of the entire rule in the NPRM is proposed, it is so noted. If a change is proposed, the entire text of the rule is included as set forth in the NPRM, and it is marked to show the changes that TIA and NSMA request. In addition to the rules addressed herein, TIA and NSMA also request, in Appendix A, that the Commission: (i) to be consistent with industry usage, revise or include definitions for "antenna power gain," "ATPC," "common carrier fixed point-to-point microwave service," "passive repeater," "path length," "periscope antenna system," "prior coordination," and "private operational fixed point-to-point microwave service;" (ii) change all appropriate cross-references to reflect these definitions; (iii) revise the table of frequencies in Section 101.101; and (iv) correct the values in Section 101.111 (emission limitations) from "Log 10" to the appropriate subscript, "Log <sub>10</sub>." Finally, the Commission must ensure that all cross-references to Parts 21 and 94 in other rules are revised as necessary to reflect the adoption of Part 101.

weather delays or the delays caused by anticipated equipment, site and construction crew shortages, all POFS and CC microwave licensees must be given 18 months to construct. Frequency coordination rules must be made expressly applicable to private and common carrier applicants and licensees. Interference dispute resolution procedures must be established. Interference criteria may be relaxed upon mutual consent of the parties. The "practical threshold" for interference protection must be defined and should be consistent with Bulletin 10-F standards. Frequency tolerance specifications for the 4, lower 6, and 11 GHz bands and for heterodyne equipment must be added. Modulation specifications must be made applicable to analog systems and must be expanded to cover equipment operating below 19.7 GHz. Loading standards must be limited to digital services and to commercially available equipment. Maximum authorized bandwidth for individual frequency bands must be specified.

- Equipment issues -- Antenna standards must be clarified so that they apply to all fixed stations operating above 900 MHz and so that antenna upgrades can be requested and paid for by the appropriate party. Antenna polarization must be defined. Use of Automatic Transmitter Power Control ("ATPC") must be permitted under the new rules for both POFS and CC licensees.

The proposal TIA submitted previously, and the recommended revisions herein, are not new. These recommendations were submitted by various parties during the ET Docket No. 92-9 rulemaking, but the Commission decided to defer full consideration of these proposals until its Part 101 rulemaking:

[W]e are...adopting our technical proposals regarding minimum path length requirements; frequency diversity transmissions; and power, emission, and bandwidth limitations....We note, however, that we are currently reviewing both the Part 21 and Part 94 technical rules, and anticipate issuing in the near future a proposal to update and consolidate these rules.<sup>9</sup>

---

<sup>9</sup>Second Report and Order, 8 FCC Rcd at 6519-20.

The fixed point-to-point microwave community has waited long enough for these rules to be adopted. Now is the time for the Commission to fulfill its promise in the Second Report and Order by considering and adopting the proposals in the NPRM, as revised herein.

**THE COMMISSION MUST REVISE ITS PROPOSED PART 101  
TO ENSURE EQUAL TREATMENT FOR PRIVATE AND COMMON CARRIER  
FIXED POINT-TO-POINT MICROWAVE APPLICANTS AND LICENSEES**

The proposals in the NPRM generally result in the necessary consolidation of the Part 21 and 94 technical standards. Unfortunately, the Commission does not go far enough:

- Rather than proposing one set of technical standards in a single subpart, the Commission scatters these standards in other subparts, resulting in redundant and confusing rules.
- The Commission proposes that CC and POFS applicants must use different application forms, even though they will be subject to the same processing and technical rules.
- In Section 101.21, the Commission only specifies the content of CC applications and does not specify any requirements for POFS applicants.
- In Sections 101.715 and 101.717, CC licensees or applicants are eligible for temporary authorizations, but POFS licensees or applicants are not given the same opportunity.
- Pending its decision in CC Docket No. 93-2, the Commission does not propose that Part 101 rules permit a CC to construct prior to being licensed.

**A. Only One Set of Technical Standards Should Be Adopted.**

In the NPRM, the Commission emphasizes that the impetus for proposing the consolidation of Parts 21 and 94 into a new Part 101 is the "convergence of the common carrier and private operational fixed microwave technical standards . . . over the last decade

as a result of several rulemaking proceedings."<sup>10</sup> Most notable among these proceedings has been the Commission's ET Docket No. 92-9, when it reallocated five (5) bands above 3 GHz on a co-primary basis for the displaced 2 GHz POFS and CC licensees.<sup>11</sup> This ongoing convergence has resulted in the "common carrier and private operational fixed microwave users [becoming] the most similar in technical requirements and [in their sharing] the most frequency bands."<sup>12</sup>

TIA and NSMA have worked with the Commission to develop the Part 101 proposed rules so that a single set of technical standards governing POFS and CC point-to-point microwave users could be established. Requiring both classes of fixed point-to-point microwave users to meet the same technical standards would:

- ensure that band sharing is conducted on a level playing field;
- eliminate unnecessary inconsistencies and duplicative rules;
- facilitate the transition from having different Commission offices process applications for, and oversee regulation of, POFS and CC services, to a coherent, unified system; and
- optimize certainty among applicants and licensees during the transition to Part 101.

The proposed rules TIA submitted to the Commission were designed to meet these objectives.

In Part 101, Subpart C (Technical Standards), the Commission sets forth a comprehensive menu of requirements for all fixed point-to-point microwave licensees.

---

<sup>10</sup>NPRM at para. 4 (footnote omitted).

<sup>11</sup>Second Report and Order, 8 FCC Rcd at 6495.

<sup>12</sup>NPRM at para. 4 (footnote omitted).

However, it also proposes certain of the same technical standards in Subpart H for the "Private Operational Fixed Microwave Service" and in Subpart I for the CC "Point-to-Point Microwave Radio Service," or it proposes technical standards in either Subpart H or I, but not in Subpart C. There is no reason for the Commission to have cobbled together this patchwork of technical rules. These unnecessary overlaps and inconsistencies include:

	Subpart C (general)	Subpart H (POFS)	Subpart I (CC)
Frequencies	101.101	101.605	101.703
Prior Coordination	101.103(d)	-	101.713
Bandwidths	-	101.607	101.707
Channel Loading	101.141(a)(3)	-	101.721
Transmitter Power	101.113	-	101.705
Supplementary Showing (including prior coordination)	-	-	101.713
Notification of Temporary Authority (including notification of antenna type and height, EIRP, and emission designation)	-	-	101.717
Technical Content of Application	-	-	101.21 (not Subpart I but only CC)
No Frequency Diversity	-	101.605(r)	-
Temporary Authorizations	-	-	101.715/101.717
Pre-licensing Construction	-	101.5(d) (not Subpart H but only POFS)	-

Instead of gerrymandering the technical rules in this manner, TIA and NSMA strongly urge the Commission to merge them all into Subpart C.<sup>13</sup> The Commission fails to justify why, for example: (i) POFS and CC frequencies need to be listed as separate rules (Sections 101.605 and 101.703); (ii) CC users, but not POFS users, can apply for temporary authorization (Sections 101.715 and 101.717); (iii) the identical bandwidth specifications are separated out into Subpart H (proposed Section 101.607) and Subpart I (101.707) instead of being unified in Subpart C; and (iv) CC users, but not POFS users, need separate channel loading (proposed Section 101.721) and transmitter power (proposed Section 101.705) requirements.

To remedy this confusing situation, TIA and NSMA propose eliminating all technical standards from Subparts H and I. These technical standards, if not already addressed in Subpart C, would be included therein. If a technical standard is unique to either POFS or CC users, that standard would be in Subpart C, but the limited scope of its applicability would be expressed clearly in the rule. Specific language for these proposed changes is in Appendix A.

#### **B. Application Content Requirements Must Be Uniform.**

Application processing is a critical component in formulating "user friendly" Part 101 rules:

---

<sup>13</sup>The exceptions to this recommendation regarding Subpart C are to: (i) revise Section 101.13 to establish a single application form for POFS and CC applicants; (ii) revise Section 101.21, which currently would be applicable only to the "Technical Content of Common Carrier Applications," to include all Part 101 applications, including those filed by POFS users; and (iii) permit, under Section 101.5, CC applicants to construct, but not operate, prior to licensing, in the same manner as POFS applicants (which is proposed in pending CC Docket No. 93-2).

Another factor necessitating this proceeding is that the majority of the license application processing for the Part 21 and Part 94 microwave services is now being handled by the Wireless Telecommunications Bureau's Licensing Division in Gettysburg, Pennsylvania. Because the application processing for these services was formerly performed by different Commission offices, the processing practices and policies differed. This proceeding seeks to bring uniformity to the fixed microwave application processing procedures.<sup>14</sup>

Despite the Commission's good intentions, its rules for application processing will undermine achieving the desired "uniformity:"

- Different application forms are required under Sections 101.13 (POFS) and 101.15 (CC). This problem can be solved by using a uniform single application form for both POFS and CC applicants (new Section 101.13).
- A roadblock to uniform application processing exists because form content is prescribed for CC applicants in the proposed Section 101.21, but no corresponding rule for POFS application form content is proposed. This inconsistency can be cured by making Section 101.21 apply to both CC and POFS users.
- Inadequate data are submitted with the application to ensure the Commission, other licensees and applicants, and frequency coordinators that interference-free operation will result and that any problems could be identified and resolved. TIA and NSMA propose requiring, by rule (new Section 101.21(d)), that all equipment for the system must be listed.
- In Section 101.713, certain supplementary application information is required for CC applications. TIA and NSMA propose moving the Section 101.713 requirements to the Section 101.21 application content rule.

The foregoing proposed revisions are set forth in Appendix A.

A single application form must be used -- In the wake of ET Docket No. 92-9, three seminal changes have been made to how fixed point-to-point microwave applications are

---

<sup>14</sup>NPRM at para. 6 (footnote omitted).

processed: (i) POFS and CC licensees share several bands above 3 GHz; (ii) all applications are processed by a single office; and (iii) significant numbers of 2 GHz fixed point-to-point microwave licensees must relocate to the bands above 3 GHz and significant numbers of PCS systems, using fixed point-to-point microwave networks, will be installed. These events have prompted the Commission to seek uniform application processing for these microwave services. Inexplicably, however, in the NPRM, the Commission persists in requiring separate application forms for POFS and CC applicants.

Consolidation of Parts 21 and 94 and adoption of Part 101 is a singular event and must be comprehensive. Unifying application processing without unifying the application form makes no sense. There is no reason to delay creating a single application form. Having such a single form in place when Part 101 becomes effective will facilitate a seamless transition to the new rules by making application preparation and processing easier.

TIA and NSMA believe that this application form, at a minimum, must contain the equipment data listed in Sections 101.21(d) and 101.103(d)(2)(ii) (as revised in Appendix A). To reflect this single form, TIA and NSMA propose revising Section 101.13, to prescribe the contents of the form, and deleting Section 101.15. TIA and NSMA also suggest that, to develop the format for this single application form and for its electronic counterpart, the Commission participate with industry in an open proceeding to assure that those proposing the form, and those gleaning essential information from it, will have input regarding its contents.<sup>15</sup>

---

<sup>15</sup>See Appendix A. The Commission "propose[s] to allow electronic filing for all fixed microwave services authorized under Part 101 . . . ." NPRM at para. 11. Electronic filing is useful because applications could be processed more rapidly and because accurate and complete data are needed to ensure proper coordination. A specific timetable for implementing electronic filing should be



Uniform application contents for POFS and CC applicants -- In Section 101.21, the Commission proposes what a CC application must include. No corresponding rule for POFS applicants is proposed. This omission can be corrected easily by expanding the scope of Section 101.21 to include both CC and POFS applicants, as proposed in Appendix A.

Identification of equipment -- To ensure common technical performance, applications should specify what equipment (including antennas) will be used in the proposed system. The current proposed Section 101.21 language only requires that:

Applications must contain all technical information required by the application form and any additional information necessary to fully describe the proposed facilities and to demonstrate compliance with all technical requirements of the rules governing the radio service involved (see Subparts C, F, G, I, and J, as appropriate).

Using an application form, instead of a specific rule provision, to mandate what information applicants must provide concerning their equipment (including antennas), is inadequate. Application content is used to maintain national frequency coordination data bases. These data bases are critical to proper coordination of microwave facilities in the U.S. by POFS and CC applicants or licensees, and in lower Canada and upper Mexico by the U.S. Government.<sup>16</sup>

Defining what equipment information must be included in the application by rule will guarantee public input before any changes can be made. As set forth in Appendix A, the applications should, at a minimum, contain the equipment data listed in proposed Section

---

proposed.

<sup>16</sup>It is ironic that the Commission's proposed Section 101.31(d), which delineates what must be in an application for Special Temporary Authorization ("STA"), requires identification of the equipment to be used, but the proposed rule governing content of applications for permanent authority does not.